

**December 2009**  
**KTMT-FM Channel 229C**  
**Medford, OR**  
**NIER Analysis**

**Antenna Change**

This exhibit has been prepared on behalf of Mapleton License of Medford, LLC, licensee of KTMT-FM on Channel 229C at Medford, Oregon. Mapleton has replaced the station's 4-bay full-wave antenna with a new 6-bay half-wave antenna. The antenna is side-mounted on a tower located atop Mount Ashland.

**NIER Calculations**

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\text{mW} / \text{cm}^2) = \frac{33.40981 \times \text{AdjERP}(\text{Watts})}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

*D* is the distance in meters from the center of radiation to the calculation point.

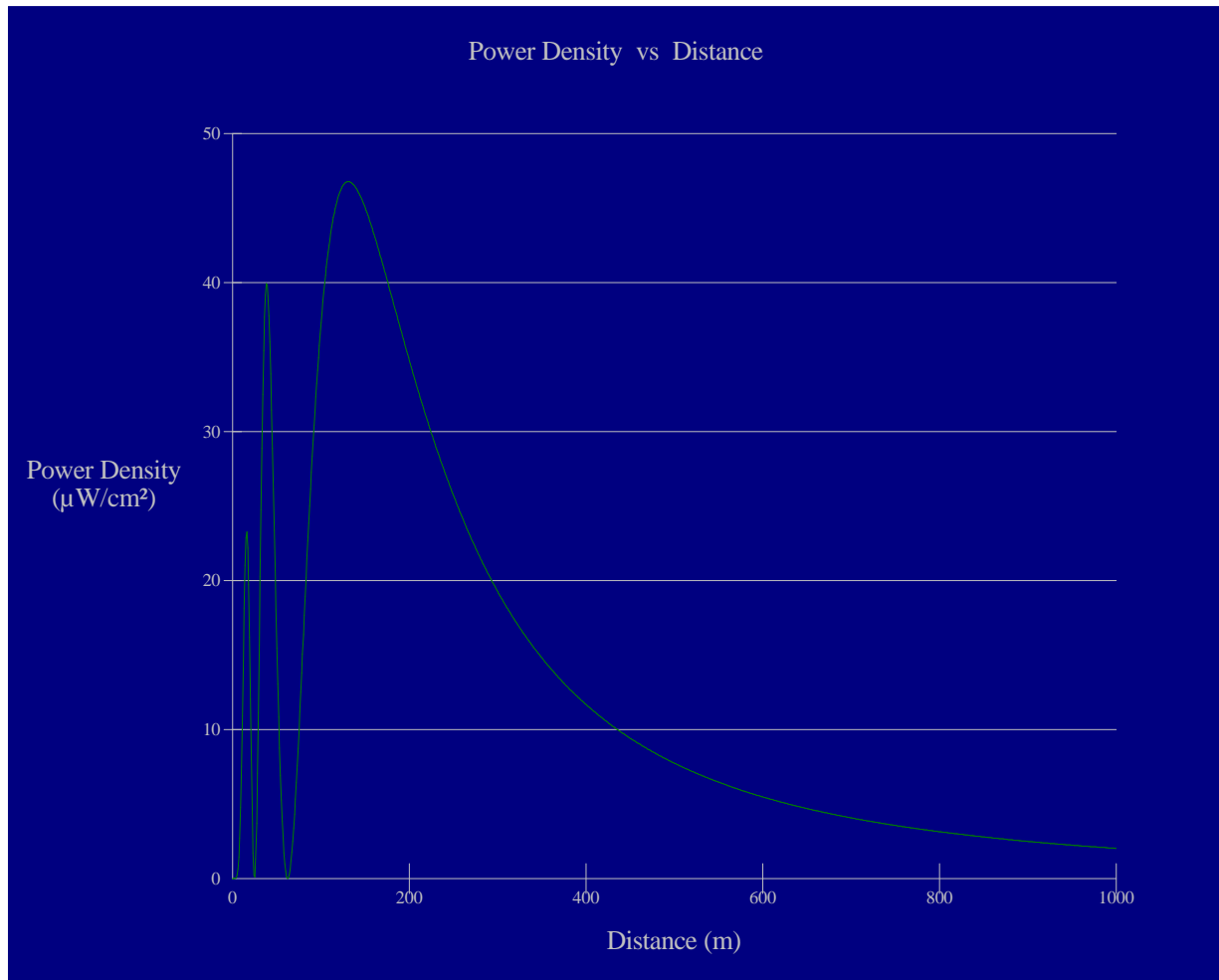
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 6 element pattern, which is the element pattern for the Shively antenna installed for use. The highest calculated ground level power density occurs at a distance of 131 meters from the base of the antenna support structure. At this point the power density is calculated to be 46.8  $\mu\text{W}/\text{cm}^2$ , which is 23.4% of 200  $\mu\text{W}/\text{cm}^2$  (the FCC standard for uncontrolled environments).

Power density levels produced by the co-located KTVL-DT facility were calculated for an elevation of 2 meters above ground (36 meters below the antenna radiation center). The worst case power density levels occur at depression angles between 45 and 90 degrees below the horizontal. The calculations in this report assume a worst-case relative field value of 0.047 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Dielectric TW-9B10 antenna installed for that station (see BLCDDT-20090612AGJ). This relative field value yields a worst-case adjusted average effective radiated power of 19.9 Watts at depression angles between 45 and 90 degrees below the horizontal. Assuming this power and the shortest distance between the antenna radiation center and 2 meters above ground level (i.e. straight down), the highest calculated power density from the proposed antenna alone occurs at the base of the antenna support structure. At this point the power density is calculated to be  $0.5 \mu\text{W}/\text{cm}^2$ , which is less than 0.3% of  $200 \mu\text{W}/\text{cm}^2$  (the FCC maximum for uncontrolled environments at the Channel 10 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the operations of KTMT-FM and KTVL-DT (were their maxima to coincide, which they do not) is 47.1% of the FCC standard for uncontrolled environments.

The permittee/licensee acknowledges its obligation in coordination with other users of the site to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.



#### Ground-Level NIER

#### OET FMModel

##### KTMT-FM 229C Medford

Antenna Type: Shively 6810 series  
No. of Elements: 6  
Element Spacing: 0.5 wavelength

Distance: 1000 meters  
Horizontal ERP: 31 kW  
Vertical ERP: 31 kW

Antenna Height: 24 meters AGL

Maximum Power Density is 46.8 :  $\text{W}/\text{cm}^2$  at 131 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers